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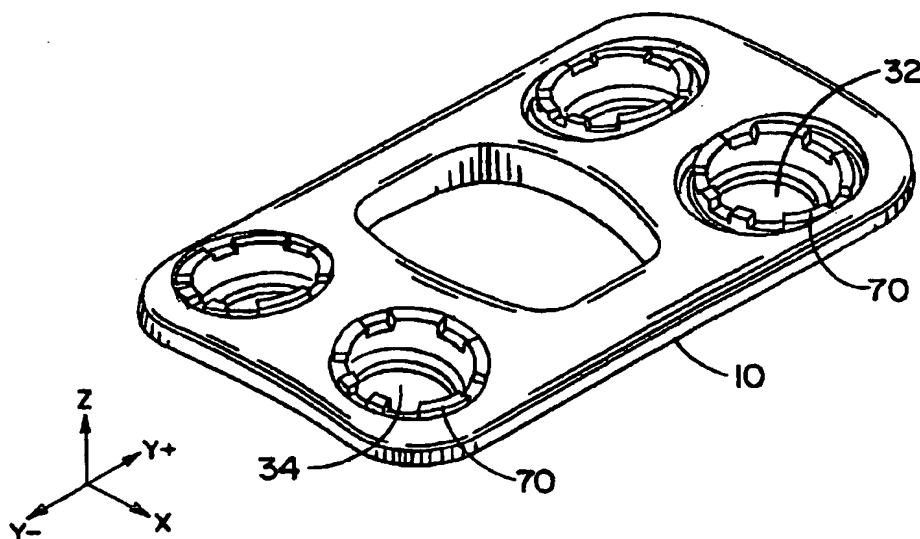
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[Continued on next page]

(54) Title: BONE PLATE SYSTEM



(57) Abstract: Bone plate and bone screw lock systems are provided for use in surgical implants. In a preferred form, the bone plate or other implantable member defines a bore for receiving a bone screw and a recess in communication with the bore. A screw lock operates in the bore at the recess to engage and lock the bone screw against unintentional movement. The preferred screw lock is shifted about the screw between an unlocked position to allow manipulation of the screw and a locked position in which the screw lock grips the head of the screw to prevent movement of the screw. The screw lock preferably has a c-shaped collar configuration with opposing ends and a camming engagement with the plate or other member in the recess. Upon rotation of the screw lock, the camming engagement causes the ends of the collar to either shift toward one another in which the collar compresses about the screw to lock the screw or away from another to unlock the screw head.



TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/03205

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61B 17/58

US CL : 606/61, 69

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 606/61, 69, 70, 71, 72, 73

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,904,683 A (POHNDORF et al) 18 May 1999 (18.05.1999), See entire document.	1-7, 9-22, 24-31, 33-54, 57, 58
Y		
Y	US 2002/0151899 A1 (BAILEY et al) 17 October 2002 (17.10.2002), See entire document.	8, 23, 32, 55, 56
Y	US 2002/0016595 A1 (MICHELSON) 07 February 2002 (07.02.2002), See entire document.	8, 32, 55, 56
X	US 2001/0047172 A1 (FOLBY et al) 29 November 2001 (29.11.2001), See entire document.	23
A	US 2001/00471174 A1 (DONNO et al) 29 November 2001 (29.11.2001), See entire document.	59-62
A	US 6,331,179 B1 (FRIED et al) 18 December 2001 (18.12.2001), See entire document.	1-58
P	US 2003/0225409 A1 (FRIED et al) 04 December 2003 (04.12.2003), See entire document.	1-58
P, B	US 2004/0127896 A1 (LOMBARDO et al) 01 July 2004 (01.07.2004), See entire document.	1-58



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"B" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

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INTERNATIONAL SEARCH REPORTInternational application No.
PCT/US04/03205**C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
T	US 2004/0127899 A1 (KONIECZYNSKI et al) 01 July 2004 (01.07.2004), See entire document.	1-62

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/03205

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation Sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐
☐

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US04/03205

BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-58, drawn to a bone plate system with a screw lock.

Group II, claim(s) 59-62, drawn to a bone plate system with out a bone screw.

and it considers that the International Application does not comply with the requirements of unity of invention (Rules 13.1, 13.2 and 13.3) for the reasons indicated below:

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group II does not require the screw lock which is the general inventive concept in view of the prior art.